

09/992,630

(FILE 'HOME' ENTERED AT 15:02:48 ON 27 FEB 2004)

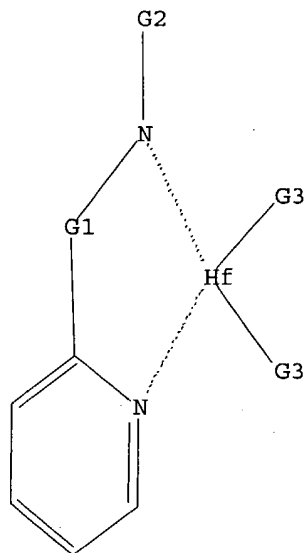
FILE 'REGISTRY' ENTERED AT 15:03:21 ON 27 FEB 2004

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



G1 C, Si

G2 Cb, Hy

G3 X, Cb, Hy, Ak

Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 15:04:04 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 3 TO ITERATE

100.0% PROCESSED 3 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 3 TO 163

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 15:04:11 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 73 TO ITERATE

100.0% PROCESSED 73 ITERATIONS

12 ANSWERS

SEARCH TIME: 00.00.01

L3 12 SEA SSS FUL L1

=> fil caplus

COST IN U.S. DOLLARS

SINCE FILE

TOTAL

FULL ESTIMATED COST

ENTRY SESSION
155.84 156.05

FILE 'CAPLUS' ENTERED AT 15:04:16 ON 27 FEB 2004
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FILE COVERS 1907 - 27 Feb 2004 VOL 140 ISS 10
FILE LAST UPDATED: 26 Feb 2004 (20040226/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l3
L4 8 L3

=> d 1-8 bib abs

L4 ANSWER 1 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:376915 CAPLUS
DN 138:370046
TI Films, blends and sealing compositions containing propylene copolymers
IN Tau, Li-Min; Chum, Steve; Karande, Seema; Bosnyak, Clive
PA Dow Global Technologies Inc., USA
SO PCT Int. Appl., 137 pp.
 CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 6

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|--|----------|-----------------|----------|
| PI | WO 2003040202 | A2 | 20030515 | WO 2002-US35566 | 20021105 |
| | WO 2003040202 | A3 | 20030828 | | |
| | W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| | RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| | US 2003204017 | A1 | 20031030 | US 2002-139786 | 20020505 |
| PRAI | US 2001-338881P | P | 20011106 | | |
| | US 2002-139786 | A | 20020505 | | |
| AB | A film comprises a first layer having a machine direction (MD) tear of at least 75 g/mil, the first layer comprising a first polymer made from (a) at least 50% of propylene, and (b) at least 5% of ethylene and/or one or more unsatd. comonomers. The component (b) unsatd. comonomers are C4-20 | | | | |

α -olefins, C4-20 dienes, and styrenic compds. The film has at least one of (i) a haze value < 10, (ii) 45 degree gloss > 65, and (iii) a dart value > 100 g/mil. In a preferred embodiment, the layer comprises a copolymer characterized as having at least one of the following properties: (i) ¹³C NMR peaks of about equal intensity corresponding to a regio-error at about 14.6 and about 15.7 ppm, (ii) a B-value > 1.4 when the comonomer content of the copolymer is at least 3%, (iii) a skewness index Six > -1.20, (iv) a DSC curve with Tme that remains essentially the same and Tmax that decreases as the amount of comonomer in the copolymer increases, and (v) an X-ray diffraction pattern that reports more gamma-form crystals than a comparable copolymer prepared with a Ziegler-Natta catalyst. The propylene copolymers are produced using non-metallocene, metal-centered, heteroaryl ligand-containing catalysts. Blends and sealing compns. comprising the propylene copolymers are also claimed. Thus, isotactic ethylene-propylene copolymers comprising 5-8% of ethylene were produced by continuous solution polymerization in toluene and

blown

into films (50 μ m) having a haze value of 2-5, 45 degree gloss of 74-88, and MD tear of 145-375 g/mil.

L4 ANSWER 2 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:376914 CAPLUS

DN 138:385930

TI Production of propylene copolymers using non-metallocene heteroaryl ligand-containing metal-centered catalysts

IN Stevens, James C.; Vanderlende, Daniel D.

PA The Dow Chemical Company, USA

SO PCT Int. Appl.; 188 pp.

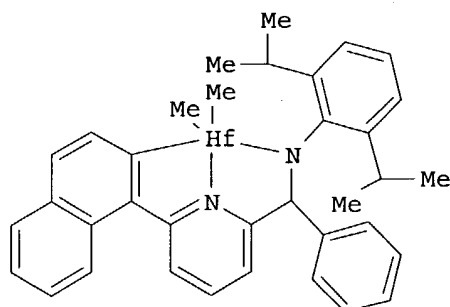
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 6

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|-------------------|--|----------|-----------------|----------|
| PI | WO 2003040201 | A1 | 20030515 | WO 2002-US14158 | 20020506 |
| | W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| | RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| | US 2003194575 | A1 | 20031016 | US 2002-289168 | 20021105 |
| PRAI | US 2001-338881P | P | 20011106 | | |
| OS | MARPAT 138:385930 | | | | |
| GI | | | | | |



AB Copolymers comprising propylene, ethylene and/or one or more unsatd. monomers are characterized as having at least one of the following properties: (a) ¹³C NMR peaks of about equal intensity corresponding to a regio-error at about 14.6 and about 15.7 ppm, (b) a B-value > 1.4 when the comonomer content of the copolymer is at least 3%, (c) a skewness index Six > -1.20, (d) a DSC curve with T_{me} that remains essentially the same and T_{max} that decreases as the amount of comonomer in the copolymer increases, and (e) an X-ray diffraction pattern that reports more gamma-form crystals than a comparable copolymer prepared with a Ziegler-Natta catalyst. These propylene polymers are produced using a non-metallocene, metal-centered, heteroaryl ligand-containing catalyst. The polymers can be blended with other polymers, such as propylene copolymers produced with metallocene catalysts, or the blends can be produced in situ by polymerizing monomers in a series reactor process using a non-metallocene catalyst of the invention in a first reactor and a metallocene catalyst in a second reactor. The copolymers and blends can be used in manufacture of films, sheets, foams, fibers and molded articles. Thus, a non-metallocene heteroaryl ligand-containing hafnium-centered catalyst (I) was produced by reacting tetrakis(dimethylamino)hafnium with 2-[(2,6-diisopropylphenylamino)phenyl]methyl-6-(1-naphthyl)pyridine in pentane, followed by reacting the intermediate with trimethylaluminum in pentane/hexane. Isotactic ethylene-propylene copolymer was produced by continuous solution polymerization in toluene using the non-metallocene catalyst,

bis(hydrogenated tallow alkyl)methylammonium tetrakis(pentafluorophenyl)borate and Me aluminoxane (PMAO-IP) as an activator.

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 3 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
AN 2003:376910 CAPLUS
DN 138:369385
TI Supported catalysts for manufacture of polymers
IN Coalter, Joseph N., III; Van Egmond, Jan W.; Fouts, Lewis J., Jr.; Painter, Roger B.; Vosepjka, Paul C.
PA Dow Global Technologies Inc., USA
SO PCT Int. Appl., 25 pp.
CODEN: PIXXD2

DT Patent
LA English

FAN.CNT 6

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|--|------|----------|-----------------|----------|
| PI | WO 2003040195 | A1 | 20030515 | WO 2002-US35617 | 20021105 |
| | WO 2003040195 | B1 | 20030828 | | |
| | W: | | | | |
| | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | | |
| | RW: | | | | |
| | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| | US 2003204017 | A1 | 20031030 | US 2002-139786 | 20020505 |
| PRAI | US 2001-338881P | P | 20011106 | | |
| | US 2002-139786 | A | 20020505 | | |

OS MARPAT 138:369385

AB A supported catalyst composition and process for preparing high mol. weight polymers
of one or more addition polymerizable monomers, especially propylene, said composition

comprising: (1) a substrate comprising the reaction product of a solid, particulated, high surface area, metal oxide, metalloid oxide, or a mixture thereof and an organoaluminum compound, (2) a Group 4 metal complex of a polyvalent, Lewis base ligand; and optionally, (3) an activating cocatalyst for the metal complex.

RE.CNT 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:449730 CAPLUS

DN 137:6602

TI Catalysts for copolymerizing ethylene and isobutylene and copolymers
IN Boussie, Thomas R.; Diamond, Gary M.; Goh, Christopher; Hall, Keith A.; La Pointe, Anne M.; Leclerc, Margarete K.; Lund, Cheryl; Murphy, Vince

PA Symyx Technologies, Inc., USA

SO PCT Int. Appl., 147 pp.

CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|---|--|----------|-----------------|----------|
| PI | WO 2002046249 | A2 | 20020613 | WO 2001-US44147 | 20011106 |
| | WO 2002046249 | A3 | 20030213 | | |
| | WO 2002046249 | C2 | 20030501 | | |
| | W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| | RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| | AU 2002041517 | A5 | 20020618 | AU 2002-41517 | 20011106 |
| | US 2002137845 | A1 | 20020926 | US 2001-992760 | 20011106 |
| | US 2002142912 | A1 | 20021003 | US 2001-992630 | 20011106 |
| | US 2002147288 | A1 | 20021010 | US 2001-992385 | 20011106 |
| | US 2002156279 | A1 | 20021024 | US 2001-992789 | 20011106 |
| | US 2002173419 | A1 | 20021121 | US 2001-992148 | 20011106 |
| | US 2002177711 | A1 | 20021128 | US 2001-993031 | 20011106 |
| | EP 1364974 | A2 | 20031126 | EP 2003-19010 | 20011106 |
| | R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI, MK, CY, AL, TR | | | |
| PRAI | US 2000-246781P | P | 20001107 | | |
| | US 2001-301666P | P | 20010628 | | |
| | EP 2001-993629 | A3 | 20011106 | | |
| | WO 2001-US44147 | W | 20011106 | | |
| OS | MARPAT 137:6602 | | | | |
| AB | Compsn., metal-ligand complexes and arrays with pyridyl amine ligands catalyze the title polymerization The catalysts comprise ligand R1NHTQ, where | | | | |
| Q | = pyridyl; T = CR ₂ R ₃ ; R ₂ , R ₃ = H, hydrocarbyl, silyl, boryl, phosphino, amino, thio, seleno, halide, nitro, and mixts.; optionally R1-3 may form a ring; R1 = (substituted) aryl, hafnium precursor, optionally ≥1 activator and trialkylaluminum. Catalysts with Hf metal centers have high performance characteristics, including higher comonomer incorporation into ethylene/olefin copolymers, for example with, 1-octene, isobutylene or styrene, which are also exemplified. Certain of the catalysts are for polymerizing propylene to high mol. weight isotactic polypropylene in a solution process at a variety of polymerization conditions, which are also exemplified. | | | | |

L4 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN

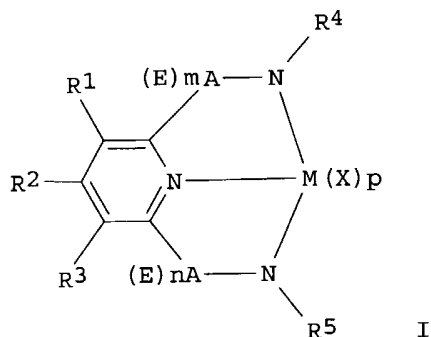
AN 2002:368531 CAPLUS
 DN 136:386578
 TI Substituted pyridyl amine ligands, complexes, catalysts and processes for
 polymerizing olefins
 IN Boussie, Thomas R.; Diamond, Gary M.; Goh, Christopher; Hall, Keith A.;
 Lapointe, Anne M.; Leclerc, Margaete K.; Lund, Cheryl; Murphy, Vince
 PA Symyx Technologies, Inc., USA
 SO PCT Int. Appl., 195 pp.
 CODEN: PIXXD2
 DT Patent
 LA English
 FAN.CNT 2

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|--|--|----------|-----------------|----------|
| PI | WO 2002038628 | A2 | 20020516 | WO 2001-US43420 | 20011106 |
| | WO 2002038628 | A3 | 20030522 | | |
| | W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |
| | RW: | GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| | AU 2002025662 | A5 | 20020521 | AU 2002-25662 | 20011106 |
| | US 2002137845 | A1 | 20020926 | US 2001-992760 | 20011106 |
| | US 2002142912 | A1 | 20021003 | US 2001-992630 | 20011106 |
| | US 2002147288 | A1 | 20021010 | US 2001-992385 | 20011106 |
| | US 2002156279 | A1 | 20021024 | US 2001-992789 | 20011106 |
| | US 2002173419 | A1 | 20021121 | US 2001-992148 | 20011106 |
| | US 2002177711 | A1 | 20021128 | US 2001-993031 | 20011106 |
| | EP 1334139 | A2 | 20030813 | EP 2001-993629 | 20011106 |
| | R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR | | | |
| | EP 1364974 | A2 | 20031126 | EP 2003-19010 | 20011106 |
| | R: | AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, LT, LV, FI, MK, CY, AL, TR | | | |
| PRAI | US 2000-246781P | P | 20001107 | | |
| | US 2001-301666P | P | 20010628 | | |
| | EP 2001-993629 | A3 | 20011106 | | |
| | WO 2001-US43420 | W | 20011106 | | |
| OS | MARPAT 136:386578 | | | | |
| AB | Certain of these catalysts with Hf metal centers have high performance characteristics, including higher comonomer incorporation into ethylene/olefin copolymers, where olefins are for example, 1-octene, isobutylene or styrene. The catalysts are particularly effective at polymerizing propylene to high mol. weight isotactic polypropylene in a solution process at a variety of polymerization conditions. | | | | |

L4 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:124194 CAPLUS
 DN 134:178968
 TI Manufacture of olefin (co)polymers in high polymerization activity
 IN Sugimura, Kenji; Takagi, Sachihiro; Fujita, Terunori
 PA Mitsui Chemicals Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 16 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|--|------------|------|-------|-----------------|-------|
| | ----- | ---- | ----- | ----- | ----- |

PI JP 2001048925 A2 20010220 JP 1999-229187 19990813
 PRAI JP 1999-229187 19990813
 OS MARPAT 134:178968
 GI

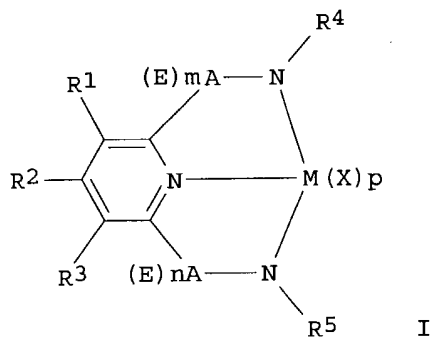


AB Olefins are (co)polymerized in the presence of catalysts comprising (A) transition metal compds. I [M = Group 3-6 metal; R1-R5 = H, halo, hydrocarbyl, etc.; A = carbon, etc.; m, n = 0-2; E = substituent containing carbon, nitrogen, etc.; X = H, halo, etc.] and (B) ≥ 1 compds. selected from organometallic compds., organic aluminumoxy compds., and compds. forming ion pairs by reaction with A, A and B being added in the polymerization systems as slurries of aliphatic or alicyclic hydrocarbons.

Thus, ethylene-1-octene copolymer with ethylene content 94 mol% was prepared at 25° and ambient temperature in the presence of hexane slurry of Me aluminoxane and heptane solution of I (M = Zr, R1-R3 = H, R4-R5 = 2,6-diisopropylphenyl, A = carbon, m = n = 0, p = 2, X = Cl).

L4 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:124187 CAPLUS
 DN 134:178966
 TI Manufacture of α -olefin random copolymers having narrow molecular weight distribution in high polymerization activity
 IN Sugimura, Kenji; Takagi, Sachihiro; Fujita, Terunori
 PA Mitsui Chemicals Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 20 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

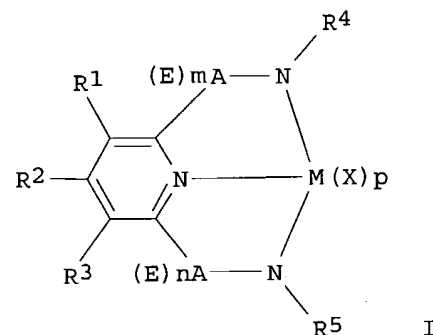
| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|-------------------|------|----------|-----------------|----------|
| PI | JP 2001048911 | A2 | 20010220 | JP 1999-229188 | 19990813 |
| PRAI | JP 1999-229188 | | 19990813 | | |
| OS | MARPAT 134:178966 | | | | |
| GI | | | | | |



AB At least 2 kinds of compds. selected from C_{≥3} α-olefins are copolymd. in the presence of catalysts comprising (A) transition metal compds. I [M = Group 3-6 metal; R₁-R₅ = H, halo, hydrocarbyl, etc.; A = carbon, etc.; m, n = 0-2; E = substituent containing carbon, nitrogen, etc.; X = H, halo, etc.] and (B) ≥1 compds. selected from organometallic compds., organic aluminumoxy compds., and compds. forming ion pairs by reaction with A. Thus, propylene and 1-butene were polymerized in the presence of Me aluminoxane and I (M = Zr, R₁-R₃ = H, R₄-R₅ = 2,6-dimethylphenyl, A = C, m = n = 0, p = 2, X = Cl) at 25° for 30 min to give a copolymer with propylene content 98 mol%.

L4 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2004 ACS on STN
 AN 2001:124186 CAPLUS
 DN 134:178965
 TI Manufacture of cyclic olefin copolymers having narrow molecular weight distribution in high polymerization activity
 IN Sugimura, Kenji; Takagi, Sachihiro; Fujita, Terunori
 PA Mitsui Chemicals Inc., Japan
 SO Jpn. Kokai Tokkyo Koho, 24 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

| | PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------|-------------------|------|----------|-----------------|----------|
| PI | JP 2001048910 | A2 | 20010220 | JP 1999-229185 | 19990813 |
| PRAI | JP 1999-229185 | | 19990813 | | |
| OS | MARPAT 134:178965 | | | | |
| GI | | | | | |



AB Cyclic olefins and normal or branched olefins are polymerized in the presence of catalysts comprising (A) transition metal compds. I [M = Group 3-6 metal; R₁-R₅ = H, halo, hydrocarbyl, etc.; A = carbon, etc.; m, n = 0-2; E

= substituent containing carbon, nitrogen, etc.; X = H, halo, etc.] and (B) ≥ 1 compds. selected from organometallic compds., organic aluminumoxy compds., and compds. forming ion pairs by reaction with A. Thus, norbornene and ethylene were polymerized in the presence of Me aluminoxane and I (M = Zr, R1-R3 = H, R4-R5 = 2,6-dimethylphenyl; A = carbon, m = n = 0, p = 2, X = Cl) at 25° for 1 h to give a copolymer with norbornene content 37 mol%.